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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/587,421

07/25/2006

Siebert Steinechner

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EXAMINER

LEE, HWA S

ART UNIT

PAPER NUMBER

2886

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,421	Applicant(s) STEINLECHNER, SIEGBERT	
	Examiner Hwa S. Lee (Andrew)	Art Unit 2886	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/25/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/25/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 7/25/06 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claim 15 recites the limitation "the analog signal" in the "converting" clause. There is insufficient antecedent basis for this limitation in the claim and is incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: The step of producing an analog signal.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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2. Claims 15 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Mattox (US 6,804,042 also published as 2003/0199115).

Mattox shows a method for producing highly accurate frequency and FM of a laser comprising the steps of:

triggering a first one of the acousto-optical modulators (136) using a first modulator frequency (f_1);

triggering a second one of the acousto-optical modulators (138) using a second modulation frequency (f_2), a difference between the first modulation frequency and the second modulation frequency forming a heterodyne frequency (column 3, lines 29+); and

converting the analog signal into a digital signal by the A/D converter (column 2, line 48) using a sampling frequency ($4 \times (f_1 - f_2)$); wherein at least two of the first modulation frequency, the second modulation frequency and the sampling frequency is formed from a fundamental frequency (inherent) of a common oscillator.

As for claim 23, Mattox shows:

a heterodyne interferometer including two acousto-optical modulators (136, 138) situated in separate light paths,

a receiver (130, 132) configured to supply an analog signal, and

a downstream analog to digital (A/D) converter configured to form a digital signal from the analog signal, a first one of the acousto-optical modulators being triggered by a first modulation frequency, and a second one of the acousto-optical modulators being triggered by a

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second modulation frequency, a difference between the first modulation frequency and the second modulation frequency corresponding to a heterodyne frequency, and a sampling frequency being provided for conversion of the analog signal into the digital signal; and

a triggering unit configured to generate at least two of the first modulation frequency, the second modulation frequency, and the sampling frequency, the triggering unit including a common oscillator having a fundamental frequency.

The limitations of “configured to” is not given any patentable weight. The limitation does not define what the configuration is, but rather only recites what the configuration is capable of doing. Since claim 23 is drawn to structure and since “configured to” does not define structure, the limitation is not given patentable weight. The use of “configured to” recites function, not structure.

In order to be given patentable weight, a function recitation must be expressed as a “means for” performing the specified function, as set forth in 35 U.S.C. 112, 6th paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. In re Fuller, 1929 C.C. 172; 388 O.G. 279.

In addition, M.P.E.P. 2114 [R-1] states:

2114 [R-1] Apparatus and Article Claims - Functional Language

APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM
THE PRIOR ART

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While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function.

In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims are rejected under 35 U.S.C. 103(a) as being unpatentable over Mattox as applied to claims 15 and 23 above, further in view of Hartman (US 6,249,155).

As to claims 16, 18, 19, and 24, Mattox does not expressly show the use of direct digital synthesis. Hartman shows frequency correction for a periodic source such as a crystal oscillator wherein direct digital synthesis is used. At the time of the invention, one of ordinary skill in the

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art would have modified the apparatus of Mattox to use direct digital synthesis in order to enable frequency correction continuously and very precisely (column 3, lines 19+).

As for the quartz oscillator, please see column 12, line 41. In addition the use of sawtooth waves is well known rather than the use of square waves.

As to claims 17 and 25, it only involves ordinary skill to use two separate direct digital synthesizers for each frequency.

As to claims 20, 21, 25-28, please see column 5, line 11+ of Mattox, wherein the average frequency is obtained with M samples per cycle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hwa S. Lee (Andrew) whose telephone number is 571-272-2419. The examiner can normally be reached on Mon, Tue, Thurs, and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur R. Chowdhury can be reached on 571-272-2800. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Hwa S. Lee (Andrew)/
Primary Examiner, Art Unit 2886